

WHAT IS CLAIMED IS:

1. A synchronization control apparatus for synchronizing the output of a voice signal and the operation of a movable portion, comprising:

phoneme-information generating means for generating phoneme information formed of a plurality of phonemes by using language information;

calculation means for calculating a phoneme continuation duration according to the phoneme information generated by the phoneme-information generating means;

computing means for computing the operation period of the movable portion according to the phoneme information generated by the phoneme-information generating means;

adjusting means for adjusting the phoneme continuation duration calculated by the calculation means and the operation period computed by the computing means;

synthesized-voice-information generating means for generating synthesized-voice information according to the phoneme continuation duration adjusted by the adjusting means;

synthesizing means for synthesizing the voice signal according to the synthesized-voice information generated by the synthesized-voice-information generating means; and

operation control means for controlling the operation

of the movable portion according to the operation period adjusted by the adjusting means.

2. A synchronization control apparatus according to
Claim 1, wherein the adjusting means compares the phoneme
continuation duration and the operation period corresponding
to each of the phonemes and performs adjustment by
substituting whichever is the longer for the shorter.

3. A synchronization control apparatus according to
Claim 1, wherein the adjusting means performs adjustment by
synchronizing at least one of the start timing and the end
timing, of the phoneme continuation duration and the
operation period corresponding to any of the phonemes.

4. A synchronization control apparatus according to
Claim 1, wherein the adjusting means performs adjustment by
substituting one of the phoneme continuation duration and
the operation period corresponding to all of the phonemes,
for the other.

5. A synchronization control apparatus according to
Claim 1, wherein the adjusting means performs adjustment by
synchronizing at least one of the start timing and the end
timing, of the phoneme continuation duration and the

operation period corresponding to each of the phonemes, and by placing no-process periods at lacking intervals.

6. A synchronization control apparatus according to Claim 1, wherein the adjusting means compares the phoneme continuation duration and the operation period corresponding to all of the phonemes and performs adjustment by extending whichever is the shorter in proportion.

7. A synchronization control apparatus according to Claim 1, wherein the operation control means controls the operation of the movable portion which imitates the operation of an organ of articulation of an animal.

8. A synchronization control apparatus according to Claim 1, further comprising detection means for detecting an external force operation applied to the movable portion.

9. A synchronization control apparatus according to Claim 8, wherein at least one of the synthesizing means and the operation control means changes a process currently being executed, in response to a detection result obtained by the detection means.

10. A synchronization control apparatus according to

Claim 1, wherein the synchronization control apparatus is a robot.

11. A synchronization control method of synchronizing the output of a voice signal and the operation of a movable portion, comprising:

a phoneme-information generating step of generating phoneme information formed of a plurality of phonemes by using language information;

a calculation step of calculating a phoneme continuation duration according to the phoneme information generated in the phoneme-information generating step;

a computing step of computing the operation period of the movable portion according to the phoneme information generated in the phoneme-information generating step;

an adjusting step for adjusting the phoneme continuation duration calculated in the calculation step and the operation period computed in the computing step;

a synthesized-voice-information generating step of generating synthesized-voice information according to the phoneme continuation duration adjusted in the adjusting step;

a synthesizing step of synthesizing the voice signal according to the synthesized-voice information generated in the synthesized-voice-information generating step; and

an operation control step of controlling the operation of the movable portion according to the operation period adjusted in the adjusting step.

12. A recording medium storing a computer-readable program for synchronizing the output of a voice signal and the operation of a movable portion, the program comprising:

a phoneme-information generating step of generating phoneme information formed of a plurality of phonemes by using language information;

a calculation step of calculating a phoneme continuation duration according to the phoneme information generated in the phoneme-information generating step;

a computing step of computing the operation period of the movable portion according to the phoneme information generated in the phoneme-information generating step;

an adjusting step for adjusting the phoneme continuation duration calculated in the calculation step and the operation period computed in the computing step;

a synthesized-voice-information generating step of generating synthesized-voice information according to the phoneme continuation duration adjusted in the adjusting step;

a synthesizing step of synthesizing the voice signal according to the synthesized-voice information generated in

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the synthesized-voice-information generating step; and
an operation control step of controlling the operation
of the movable portion according to the operation period
adjusted in the adjusting step.

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